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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/031,904	01/18/2002	Janice Au-Young	PF-0726 USN	8248

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EXAMINER	
LI, RUIXIANG	
ART UNIT	**PAPER NUMBER**
1646	

DATE MAILED: 05/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/031,904	AU-YOUNG ET AL.	
	Examiner	Art Unit	
	Ruixiang Li	1646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 March 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-7,9,11,13,15 and 28* is/are pending in the application.

4a) Of the above claim(s) *13,15 and 28* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-7, 9 and 11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

RESPONSE TO AMENDMENT

I. Status of Application, Amendments, and/or Claims

Applicants' amendments filed on March 25, 2004 has been entered in full. Claims 1, 2, 8, 10, 16, 17, 19, 22, 25-26 have been canceled. Claims 3-5, 9, and 11 have been amended. Claims 3-7, 9, 11, 13, 15, and 28 are currently pending. Claims 3-7, 9, and 11 are under consideration.

Applicants' original response filed on May 5, 2003, and the substitute response filed on August 14, 2003, are not considered by the Examiner because, as noted by Applicants, the amendment filed on March 25, 2004 is intended to replace Applicants' original response filed on May 5, 2003, and the substitute response filed on August 14, 2003.

Applicants' request for rejoinder of method claims is noted. Upon allowance of a product claim, method claims comparable in scope to the allowed product claim will be rejoined.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.

II. Withdrawn Rejections and/or Objections

The rejection of claims 3, 6, 7, and 9 under 35 U.S.C. §102 (e) as being anticipated by Fearon et al. (U.S. patent No. 5,981,481, November 9, 1999, filed on

June 6, 1995), as set forth at pages 10-11 of the previous office action (Paper No. 10, November 4, 2002), has been withdrawn in view of Applicants' amendment to the claims.

The objection to claims 3-7 and 9 for reciting non-elected amino/nucleic acid sequences has been withdrawn in view of Applicants' amendment to the claims.

III. Claim Rejections under 35 U.S.C. § 101

The rejection of claims 3-7, 9, and 11 under 35 U.S.C. § 101 is maintained. The basis for this rejection is set forth at pages 4-6 of the previous Office Action (Paper No. 10, November 4, 2002).

Beginning at page 8 of Applicants' response, Applicants argue that the invention at issue is a polynucleotide (SEQ ID NO: 30) representing to a full-length expressed signal peptide (SEQ ID NO: 8) that is expressed in reproductive, hematopoietic/immune, gastrointestinal, and nervous tissues in humans and exhibits homology to human complement receptor 1. Expression of the claimed polypeptide is associated with cancer, inflammation/trauma, and cell proliferation. Applicants also argue that the claimed invention has numerous practical, beneficial uses in toxicology testing, drug development, and the diagnosis of disease, none of which requires knowledge of the function of the polypeptide encoded by the polynucleotide. Applicants submitted three expert declaration under 37 C.F.R. § 1.132 and ten scientific publications and argue that

the polynucleotide can be used as a probe in cDNA microarrays and used in gene expression monitoring applications.

Applicants' argument, declarations and references submitted by Applicants have been fully considered, but are not deemed to be persuasive for the following reasons. First, while disclosing the expression in certain tissues, sequence homology with human complement receptor 1, the instant specification fails to disclose any biological functions or physiological significance of the nucleic acids of the present invention. The specification asserts that Table 3 shows the tissue-specificity and disease, disorders, or conditions associated with nucleotide sequences (the 2nd paragraph of page 25). Specifically, expression of the claimed polynucleotide is associated with cancer, inflammation/trauma, and cell proliferation. However, such information is not sufficient for establishing a utility in diagnosis of disease because there is no information regarding a correlative or causal relationship between the expression of the claimed polynucleotide and a specific disease.

Secondly, while the Examiner agrees that the polynucleotide can be used as a probe in cDNA microarrays and used in gene expression monitoring applications, such uses do not constitute a specific and substantial utility under 35 U.S.C. § 101 because the specification fails to identify any specific diseases that are associated with the claimed nucleic acids. Clearly, further research would be required to determine the functions of the claimed molecules or to identify a disease that can be treated or diagnosed with the claimed nucleic acids. See *Brenner v. Manson*, 383 U.S. 519, 148

USPQ 689 (Sup. Ct. 1966), noting that "a patent is not a hunting license. It is not a reward for the search, but compensation for its successful conclusion."

Furthermore, uses of polynucleotides in toxicology testing and drug development, and the diagnosis of disease, as applicants argued here, do not represent specific and substantial uses because without the biological significance of the polynucleotides, one skilled in the art would not be able to assess the meaning of the testing results, as detailed below.

(i) With regard to toxicology testing. First, the arguments and evidence merely show the toxicology testing technologies are important and useful to the scientific community. They do not convey that the claimed invention has a patentable utility. It is noted that the instant claims are drawn to an isolated polynucleotide, not the toxicology testing technologies. Secondly, for a utility to be 'well-established', it must be specific, substantial and credible. The particulars of toxicology testing with the claimed polynucleotides are not disclosed in the instant specification. Neither the toxic substances nor the susceptible organ systems are identified. Therefore, this is a utility that would apply to virtually every member of a general class of materials, such as any collection of proteins or polynucleotides. Because of this, such a utility is not specific and does not constitute a well-established utility.

Furthermore, because any potential diagnostic utility is not yet known and has not yet been disclosed, the utility is not substantial because it is not currently available in practical form. Moreover, use of the claimed polynucleotides in an array for toxicology screening is only useful in the sense that the information that is gained from the array is

dependent on the pattern derived from the array, and says nothing with regard to each individual member of the array. Again, this is a utility that would apply to virtually every member of a general class of materials, such as any collection of proteins or polynucleotides. Even if the expression of the claimed polynucleotide were affected by a test compound in an array for drug screening, the claimed polynucleotide would still have no well-established use since the specification does not disclose any specific and substantial interpretation for the result and none is known in the art. The artisan is required to perform further experimentation on the claimed polynucleotide itself in order to determine to what 'use" any expression information regarding this nucleic acid could be put.

(ii) With regard to drug discovery and development. Applicants refer to recent developments as providing evidence that the benefits of this information are already beginning to manifest themselves. The examiner disagrees. There is no way to assess drug toxicity and efficacy merely from the gene transcript image based upon the expression profile of uncharacterized nucleic acids. The first requirement is that one must know biological significance of the polynucleotides that are being evaluated. Without this information, the results of the transcript image are useless because one would not know if the polynucleotide's expression should be increased or decreased or even what significance could be attributed to such changes in expression profiles.

(iii) With regard to diagnosis of disease. In order for a polynucleotide to be useful as asserted, for diagnosis, there must be a well-established or disclosed correlation or relationship between the claimed polynucleotide and a disease or disorder. There must

be some expression pattern that would allow the claimed polynucleotides to be used in a diagnostic manner. Many proteins are expressed in normal tissues and diseased tissues. Therefore, one needs to know, e.g., that the claimed polynucleotides is either present only in a specific disease tissue to the exclusion of normal tissue or is expressed in higher levels in diseased tissue compared to normal tissue (i.e., overexpression). Evidence of a differential expression might serve as a basis for use of the claimed polynucleotides as diagnostics for the disease. However, in the absence of any disclosed relationship between the claimed polynucleotides or the proteins that are encoded by the polynucleotides with any known disease or disorder, any information obtained from an expression profile would only serve as the basis for further research on the observation itself. "Congress intended that no patent be granted on a chemical compound whose sole 'utility consists of its potential role as an object of use-testing." Brenner v. Manson, 148 USPQ at 696. The disclosure does not present a substantial utility that would support the requirement of 35 U. S. C. § 101.

For the above reasons, the disclosure fails to provide a specific, substantial, and credible utility, or a well-established utility for the claimed invention.

IV. Claim Rejections Under 35 U. S. C. § 112, 1st Paragraph (Enablement)

Claims 3-7, 9, and 11 are also rejected under 35 U.S.C. § 112, 1st paragraph. Specifically, since the claimed invention is not supported by either a specific, substantial, and credible utility, or a well-established utility, one skilled in the art clearly

would not know how to use the claimed invention. The basis for this rejection is set forth at pages 4-6 of the previous Office Action (Paper No. 10, November 4, 2002).

Applicants' argument about the patentable utility of the claimed invention has been fully considered, but are not deemed to be persuasive for the reasons set forth above.

Furthermore, the previous Office Action (Paper No. 10, November 4, 2002) states that even if the polynucleotides sequence set forth in SEQ ID NO: 30 which encodes the polypeptide of SEQ ID NO: 8 were to have a patentable utility, the instant disclosure would not be found to be enabling for the full scope of the invention. Since the amended claims 3, 6, 7, 9, and 11 still recite naturally occurring variants of SEQ ID NO: 8 or SEQ ID NO: 30 without a functional limitation. The scope of enablement rejection is maintained.

Applicants argue that the Examiner misunderstands the nature of the requisite enablement in the present case. Applicants submit that one desiring to make applicant's invention needs only to possess the very ordinary skills required to make or isolate a polynucleotides encoding a naturally occurring amino acid sequence having sequence identity to SEQ ID NO: 8. This has been fully considered, but is not deemed to be persuasive because the specification fails to provide sufficient description of these natural variants and thus fails to provide sufficient direction to guide an artisan to make such a natural variant. In addition, the claim does not require a functional limitation and the specification fails to provide sufficient directions to guide an artisan to use those

variants that do not have the same functions as that of SEQ ID NO: 8, an artisan would not be able to use the claimed genus of nucleic acids without undue experimentation.

V. Claim Rejections Under 35 U. S. C. § 112, 1st Paragraph (Written Description)

The rejection of claims 3, 6, 7, 9, and 11 under 35 U.S.C. § 112, 1st paragraph (written description), as set forth at pages 8-10 of the previous Office Action (Paper No. 10, November 4, 2002) is maintained.

Claims 3, 6, 7, and 9 are rejected because they recite an isolated polynucleotide encoding a naturally occurring amino acid sequence having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 8, whereas claim 11 recites an isolated polynucleotide comprising a naturally occurring polynucleotides sequence having at least 70% sequence identity to a polynucleotide sequence comprising SEQ ID NO: 30.

Beginning at page 12, Applicants argue, citing case law and Guidelines for Examination of Patent Applications Under the 35 U.S. C. Sec. 112, para. 1, that the specification provides an adequate written description of the recited variants. Applicants submit that one of ordinary skill in the art would recognize polynucleotide sequences which are variants having a polynucleotide sequence at least 90% identical to SEQ ID NO: 30, or which encode polypeptide variants having an amino acid sequence at least 90% identical to SEQ ID NO: 8.

This has been fully considered, but is not deemed to be persuasive for the following reasons. First, it is noted that claim 11 is drawn to an isolated polynucleotide

comprising a naturally occurring polynucleotide sequence having at least 70% sequence identity to a polynucleotide sequence comprising SEQ ID NO: 30, not 90%. Secondly, the specification fails to disclose any functional natural variants of SEQ ID NO: 8 or 30. What is disclosed is a mere statement that the invention encompasses a variant having at least 40% identity to the particular nucleic acid sequence or the polypeptide sequence over a certain length of the sequence (bottom of page 23 to page 24). There is no actual description of variants with *at least 90% identical to SEQ ID NO: 8 or 30.* Furthermore, the specification fails to provide sufficient distinguishing identifying characteristics of the genus and fails to teach how to distinguish a naturally occurring amino acid sequence from a non-naturally occurring one. Thus, Applicants were not in possession of the claimed invention at the time the application was filed.

Beginning at the bottom of page 14, Applicants, citing case law, argue that the present claims specifically define the claimed genus through the recitation of chemical structure. This has been fully considered, but is not deemed to be persuasive because claims 3 (b) and 9 (b) recite an isolated polypeptide comprising a naturally occurring amino acid sequence having at least 90% sequence identity to SEQ ID NO: 8, whereas claim 11 recites an isolated polypeptide comprising a naturally occurring polynucleotide sequence having at least 70% sequence identity to a polynucleotide sequence comprising SEQ ID NO: 30. Thus, the claim is drawn to a genus of nucleic acids that is defined only by partial sequence identity to SEQ ID NO: 8 or 30, not by complete chemical structure as Applicants argued. The specification further fails to provide

representative examples of such variants and methods of making such variants.

Beginning at page 18, Applicants argue that the present claims do not define a genus which is highly variant. Applicants submit that available evidence illustrates that the claimed genus is of narrow scope. This has been fully considered, but is not deemed to be persuasive because the specification is required to provide a sufficient description of the claimed subject matter regardless of the scope of a genus. Even if the claimed genus were as narrow as Applicants asserted, the specification would still be required to provide a sufficient description for the claimed genus. The mere recitation of percentage identity does not define the chemical structure of the genus and thus does not satisfy the description requirement under 35 U.S.C. 112, first paragraph. Furthermore, since there is no recitation of the biological functions of the variants in the claim, the sequence homology alone does not limit that the claimed variants are functional variants of SEQ ID NO: 8 or 30.

Beginning at the bottom of page 18, Applicants argue that the state of the art at the time of the present invention is further advanced that at the time of the Lilly and Fiers applications. This has been fully considered, but is not deemed to be persuasive because while the state of the art at the time of the present invention had been further advanced, the description requirement under 35 U.S.C. 112, first paragraph remains the same; that is the specification is required to provide sufficient description for the claimed subject matter. In the instant case, the specification fails to define the chemical structure

of the genus, fails to describe the relation of the functions to structure of the genus, fails to provide representative species of the genus, and fails to teach how to distinguish a naturally occurring amino acid sequence from a non-naturally occurring one. Therefore, Applicants were not in possession of the claimed variants at the time when the application was filed.

Finally, at page 19, Applicants summarize their arguments and submit that the specification satisfies the description requirement under 35 U.S.C. 112, first paragraph. The Examiner believes that the rejections should be maintained for the reasons set forth above.

V. Conclusion

No claims are allowed.

THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ruixiang Li whose telephone number is (571) 272-0875. The examiner can normally be reached on Monday-Friday, 8:30 am-5:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler, can be reached on (571) 272-0871. The fax number for this Group is (703) 872-9306.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [Gary.Kunz@uspto.gov]. All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1600.

Ruixiang Li
Examiner
May 12, 2004

Gary L Kunz

GARY KUNZ
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